

CLAIMS

1. System for seismic exploration of a submerged sub-surface (32) including:
  - a number of bases (4) each incorporating at least one sensor (10, 12); and
  - a module (6) associated with each base and incorporating data storage media (29),
- 10 characterized in that it incorporates facilities which can be dismantled again for fitting the module onto the base.
2. System according to Claim 1, in which the module (6) is fitted onto the base by means of a sliding motion then by a rotation about an axis (40) parallel to the direction of the sliding motion.
- 15 3. System according to either of the preceding claims, in which it is provided with facilities (30) to bring the module (6) to the base (4) and facilities (30) to carry out the fitting of the module onto the base.
- 20 4. System according to any one of the preceding claims, in which provision is made for submerged facilities (60) for storage of one or more modules (6) dismantled from their bases.
- 25 5. System according to any one of the preceding claims, in which the base includes a stem and a support zone (52) extending radially in projection from the stem in order to prevent a portion of the base situated above the support zone from penetrating the ground.
- 30 6. System according to the preceding claim, in which the support zone (52) presents a smooth lower face (53).

7. System according to either of Claims 5 or 6, in which the support zone (52) presents orifices extending in a direction not perpendicular to a longitudinal direction (40) of the stem.

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8. System according to any one of Claims 5 to 7, in which the support zone (52) presents an upper face (56) widening out towards a lower face of the support zone.

10 9. System according to any one of the preceding claims, in which the base presents a housing (18) for the module and facilities (62) to seal the housing in the absence of the module.

15 10. System according to any one of the preceding claims, in which the base (4) includes a mooring element (60) for a vehicle (30).

20 11. System according to any one of the preceding claims, in which provision is made for facilities (30) for carrying out the dismantling of the module (6) on the base (4) and facilities (30) for transporting the module away from the base.

25 12. System according to any one of the preceding claims, in which the module (6) has a density roughly equal to 1.

30 13. System according to any one of the preceding claims, in which the module (6) includes a source of electrical power (25).

14. System according to any one of the preceding claims, in which the module (6) includes a clock (27).

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15. System according to any one of the preceding claims, in which the module (6) includes means for transmitting and/or receiving of an acoustic signal.

16. System according to any one of the preceding claims, in which the base (4) includes at least one geophone (10).
- 5 17. System according to the preceding claim, in which the base (4) includes an acoustic decoupler (16) between the geophone (10) and a zone (18) of the base suitable for receiving the module (6).
- 10 18. System according to any one of the preceding claims, in which the base (4) includes a hydrophone (12).
- 15 19. System according to any one of the preceding claims, in which the base (4) includes a digitizer (14).
- 20 20. System according to any one of the preceding claims, in which the base (4) has a height ranging between 1 and 40 metres.
- 25 21. System according to any one of the preceding claims, in which the fitting facilities are suited to establishing an electrical connection by contact between the base (4) and the module (6).
- 30 22. System according to any one of the preceding claims, in which the fitting facilities are suitable for positioning the module (6) on the base (4) in order to establish a magnetic link between parts of the base and of the module without contact of the parts one with another.
- 35 23. System according to any one of the preceding claims, in which provision is made for a cable (34) connecting several bases (4) between themselves.

24. System according to any one of the preceding claims, in which provision is made for several bases (4) without a cable link between them.

5 25. Base (4), characterized in that it is suitable to be part of a system according to any one of the preceding claims.

10 26. Module (6), characterized in that it is suitable to be part of a system according to any one of Claims 1 to 24.

15 27. Seismic exploration process of a submerged sub-surface (32), characterized in that at least one module (6) including data storage media (29) is fixed to a base (4) fixed to a submerged bed (32) and incorporating at least one sensor (10, 12).

20 28. Process according to Claim 27, in which provision is made for a previous stage consisting of fixing the base (4) to the bed (32).

25 29. Process according to either of Claims 27 or 28, characterized in that the base is fixed to the bed by releasing the base in free fall towards the bed.

30 30. Process according to any one of Claims 27 to 29, in which the base (4) is fixed in such a way that a zone of the base suitable for receiving the module (6) extends in projection from the bed (32).

35 31. Process according to any one of Claims 27 to 30, in which, in a manner concomitant with the fixing stage, a module operation is tested.

32. Process according to any one of Claims 27 to 31, in which provision is made for a later stage consisting of carrying out a seismic exploration of the sub-surface by means of the base and the module.

33. Process according to Claim 32, in which the exploration is carried out by means of several bases (4) without a cable link between them.

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34. Process according to any one of Claims 27 to 33, in which provision is made for a later stage consisting of removing the module (6) from the base (4) and taking the module away from the base.

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35. Process according to any one of Claims 27 to 34, in which several bases (4) suitable for receiving respective modules (6) are connected by at least one cable (34).